4.22 CUMULATIVE IMPACTS

Cumulative impacts are the effects on the environment from all past, present, and reasonably foreseeable future actions outside of the scope or not associated with the proposed project. These impacts are discussed because the quality of the human environment is the result of many actions or factors working together to produce a cumulative effect. The effect of any single action cannot be determined by considering that action in isolation. The cumulative impacts discussion that follows considers the proposed alternatives in the context of the broader human environment, outside the scope and geographic area described by the Resource Management Plan (the VPA), with the purpose of determining whether the proposed project would produce major adverse impacts within the VPA.

4.22.1 Cumulative Impacts on Soil and Water Resources

Reasonably foreseeable actions affecting soil and water resources include increased oil and gas development on and off of Federal lands, road building on and off of Federal lands associated with increased oil and gas development and mineral exploration, and increased need for water supply to support mineral extraction, new road construction, and new recreation facilities. The cumulative impacts from these activities would be greater with more surface disturbance and with full resource development could be severe.

Soil productivity would be primarily impacted by surface disturbance and vegetation loss associated with these activities, increasing soil erosion and loss, landslides and flooding. Surface water quality would primarily be impacted by increased soil erosion, increased salinity, and sedimentation of streams. Changes in the timing and magnitude of surface water flows would also reasonably be expected depending on the magnitude of the actions.

Groundwater quality may be affected through the discharge of saline, or hydrocarbon-impacted waters, during drilling and development of oil and gas wells. Utilization of groundwater as a water supply to support resource development may result in decreased aquifer storage and lower water levels. Shallow alluvial aquifers may be negatively impacted due to development as well. The vertical movement of groundwater along fractures and faults induced by production of hydrocarbons and water from oil and gas wells could change salinity concentrations over a short or long period of time, dependent upon structural controls and rock types. These effects may have an impact on surface water features, such as springs and perennial flows, and may have an economic impact on domestic wells through increased pumping costs.

Alternative A would present a level of soils and water protection balanced between Alternatives B and C. Alternative B would favor resource development, and more surface disturbing activities would occur than in the other action alternatives and therefore have greater cumulative effects. Alternative C would favor resource protection, and less surface disturbing activities would occur than in the other action alternatives and therefore have fewer cumulative effects. Alternative D is the No Action Alternative, and many of the management guidelines are unspecified with respect to water, soils, and other resources.

Cultural, forage, fire management, lands and realty, rangeland improvement, riparian, soil and water, special designations, special status species, paleontology, travel, visual resource, wild horses, wildlife, and woodlands decisions would cause beneficial or minimal cumulative effects to soil and water resources from all alternatives as compared to the No Action Alternative.

Mineral resource decisions would cause adverse cumulative effects to soil and water resources.

Livestock and recreation resource decisions would cause both beneficial and adverse cumulative effects to soil resources. With respect to livestock, trampling would be adverse to soils, but proper grazing management would enhance vegetation cover, thereby reducing soil erosion. With respect to recreation, open OHV use would be adverse to soils. Expanding SRMAs would be adverse by causing increased traffic and recreational pressures; however, SRMAs would also protect lands from surface disturbing activities (namely mineral extraction).

Outside of BLM lands, resource decisions occurring on other lands managed by state and federal agencies (US Forest Service) would have cumulative effects similar to the BLM. Private lands present a full spectrum from full resource development/use (adverse) to resource preservation (beneficial).

4.22.2 Cumulative Impacts on Riparian Resources

Alternative A would present a level of riparian resource protection balanced between Alternatives B and C. Alternative B would favor resource development, and more surface disturbing activities would occur than in the other action alternatives. Alternative C would favor riparian resource protection, and less surface disturbing activities would occur than in other action alternatives. Alternative D – No Action, is such that many of the management guidelines are unspecified with respect to riparian resources and other resources.

Cultural, forage, fire management, lands and realty, rangeland improvement, riparian, soil and watershed, special designations, special status species, travel, visual resource, wild horses, wildlife, and woodlands management decisions would cause beneficial cumulative effects to riparian resources.

Mineral resource decisions would cause adverse cumulative effects to riparian resources.

Livestock and recreation resource decisions would cause both beneficial and adverse cumulative effects to soil resources. With respect to livestock, trampling would be adverse to soils, but proper grazing management would enhance vegetation cover, thereby reducing soil erosion. With respect to recreation, open OHV use would be adverse to soils. Expanding SRMAs would be adverse by causing increased traffic and recreational pressures, however, SRMAs would also protect lands from surface disturbing activities (namely mineral extraction).

Outside of BLM lands, resource decisions occurring on other lands managed by state and federal agencies (USFS) would have cumulative effects consistent with the BLM. Private lands present a full spectrum of resource management, from full resource development/use (adverse) to resource preservation (beneficial).

4.22.3 Cumulative Impacts on Vegetation

Resource decisions from this RMP could, combined with other past, present, and reasonably foreseeable actions, produce cumulative impacts to the vegetation of the VPA. Co-occurring planning projects in the region include the Price Field Office BLM RMP, and the Ashley National Forest Management Plan. Resource decisions for the Price Field Office, which is adjacent to the VPA, would likely result in cumulative effects. The same management direction and resource uses occur in both planning areas. The Ashley National Forest management decisions would also overlap regarding several of the same resources. Surface disturbance associated with consumptive uses such as oil and gas, and minerals development, and forage use would result in cumulative effects over a larger landscape scale than what is analyzed in this VPA RMP.

Oil and gas development has occurred across this region in the past and will continue into the future. The Veritas-Seismic Exploration Project is also ongoing. Several Environmental Impact Statements and Environmental Assessments have been prepared to assess these impacts. The combined amount of surface disturbance of these past, present, and future actions would be adverse to vegetation. The spatial layout of oil and gas facilities disturbs a large proportion of vegetation when considered across the landscape. Each disturbed area for a well pad or road increases the opportunity for weed invasions and disrupts the spatial continuity of vegetation communities.

4.22.4 Cumulative Impacts on Socioeconomics

The Forest Management Plan for the Ashley National Forest could have a cumulative impact with respect to social and economic conditions by either increasing or decreasing tourism visitation based on allowable activities. Additionally, if drilling for oil and gas is allowed on the forest, it could affect the regional economy by reducing tourism and potentially increasing the oil and gas sector of the economy.

Economic plans completed by Uintah, Daggett and Duchesne Counties set forth a desired direction for the local economy of each county. These plans, when taken together with the allowable activities on federal lands, could cumulatively affect the economic condition of the region by increasing jobs and population.

The mission of the State of Utah Travel Council is to promote tourism throughout the State of Utah. The Travel Council currently promotes the VPA as 'Dinosaurland', where visitors can explore paleontological resources while enjoying the outdoors. The visitation resulting from this marketing, when considered together with recreational activities that would occur on federal lands, could create a beneficial cumulative impact to the regional tourism industry.

Dinosaur National Monument draws approximately 300,000 visitors each year. Continued visitation will bring additional visitors to the VPA and create a beneficial effect on the tourism economy of the area

4.22.5 Cumulative Impacts on Air Quality

The cumulative effects on air quality discussed here should be considered in addition to those discussed in previous chapters and under the related resource sections. No past projects or actions are anticipated to add to the impacts of any of the management decisions currently being considered.

Present projects or actions are anticipated to add to the impacts of the management decisions currently being considered only to the extent that the background concentration of xylene utilized for modeling of air quality impacts is 189.48 $\mu g/m^3$, well above the 100 $\mu g/m^3$ threshold identified by EPA's IRIS as a RfC for the 24-hour average (EPA 1997). However, this background concentration is based on data collected in Glenwood Springs, Colorado (the closest available monitoring point appropriate to the project area) and most likely represents an overestimation of the actual concentrations of xylene within the project area.

Reasonably foreseeable future projects or actions have the potential to add to the impacts of any of the management decisions currently being considered as follows. The primary source of air quality impacts from mineral resource development decisions in the VPA is the production of oil and gas. The magnitude of air quality impact associated with these activities is directly related to

the density and intensity with which extraction proceeds. Therefore, air quality impacts associated with the proposed management alternatives are expected to be related to worldwide oil and natural gas production.

It is reasonable to assume that oil, natural gas, and coal bed methane exploration and development would continue within the project area over the next 15 years. However, if alternative energy sources are developed within the VPA and successfully compete with traditional fossil fuel resources, the demand for fossil fuels may decrease, thereby decreasing the demand for oil, natural gas, and coal bed methane exploration and development and, proportionately, decreasing air quality impacts. Similar decreases would be expected to occur in other mineral resource extraction activities and the associated air quality impacts with development of alternative energy sources.

Other cumulative air quality impacts would be due to continued increases in prescribed fire use for fuels management by both the BLM and other federal agencies. Additionally, human population is expected to continue to grow in and around the planning area, with attendant increases in pollutants from vehicle emissions.

4.22.5.1 Alternative A

The air quality modeling performed as part of this analysis considered the air quality impacts of both proposed (near-field and far-field) and existing emission sources within the project area. As discussed in the specific air quality modeling section and the TSD (Trinity, 2003), background data in most cases represented an overestimation of existing concentrations, which adds an additional margin of safety to the other conservative assumptions discussed previously. It is possible, however, that the development proposed by Alternative A, combined with increased population growth and usage of the project area, could result in increased pollutant levels above those projected by the model.

The air quality modeling projected an increase in PM_{10} concentrations within the VPA and specific PSD Class II sensitive areas related to management decisions specific to mineral extraction. Future, non-project sources of airborne particulate and NO_x emissions associated with increased traffic in the area could produce potentially substantial cumulative impacts to these areas.

Air quality modeling also projected an increase in ambient 24-hour xylene concentrations associated with management decisions specific to mineral extraction. As the existing background concentrations exceeded the ambient air quality threshold of 100 $\mu g/m^3$, the potential exists that future, non-project sources of xylene (such as compressors or glycol dehydrators associated with non-BLM gas extraction activities) could result in cumulative impacts to air quality in the VPA.

Air quality modeling for the VPA showed that particulate emissions represent the most probable mechanism for visibility impacts. Therefore, an increase in future, non-project sources of PM_{10}, and $PM_{2.5}$, especially if combined with increased SO_2 and NO_2 emissions, could produce potentially substantial cumulative impacts to visibility in the VPA and surrounding areas.

4.22.5.2 Alternative B

Contributions to cumulative impacts to air quality from management decisions associated with Alternative B are expected to be comparable to those described for Alternative A.

4.22.5.3 Alternative C

Contributions to cumulative impacts to air quality from management decisions associated with Alternative C are expected to be comparable to those described for Alternative A.

4.22.5.4 Alternative D – No Action

Contributions to cumulative impacts to air quality from management decisions associated with Alternative D are expected to be comparable to those described for Alternative A.

4.22.6 Cumulative Impacts on Hazardous Materials

Cumulative impacts would be the same for all of the alternatives. The potential impacts would be due to management actions and planning within those lands surround the VPA, including the Price BLM Field Office, Dinosaur National Monument, and Ashley National Forest. Minerals development within surrounding areas would increase the use, generation, and transportation of hazardous materials. City and County use plans for surrounding communities could have cumulative effects, whereby mineral resources are developed adjacent to BLM lands. State lands that are surrounded by BLM land could have impacts from inholding development.

Hazardous materials are regulated by the EPA and administrated by state agencies regardless of land status. If all applicable laws, regulations, safeguards, and procedures were followed, there would be no cumulative impacts caused by hazardous materials.

4.22.7 Cumulative Impacts on Lands and Realty

Cumulative impacts would be the same from all alternatives. The impacts would be due to management of surrounding land use including Price BLM RMP, Dinosaur National Monument, and Ashley National Forest. City and County use plans for surrounding communities could have cumulative impacts where land is developed adjacent to BLM lands. Management of existing ROWs not owned by the BLM could also have cumulative impacts. Generally, cumulative impacts of lands and realty decisions would include an increased potential for development in localized areas adjacent to communities. Such developments could alter the open space nature of public lands by having additional visual impacts and transforming limited areas into more urbanized settings. The potential for increased recreational use in currently unused areas could occur if additional easements are pursued that alter the pristine character of some areas. Potential corridor developments in support of energy-related uses could create large-scale linear visual impacts. State lands that are surrounded by BLM land could have impacts from development if these inholdings are improved. The potential for consolidating land ownership patterns could also have impacts in terms of development in more remote areas. Impacts could include changes in visual quality, impacts on watersheds, and impacts on wildlife habitats. Transportation improvements could also have cumulative impacts.

4.22.8 Cumulative Impacts on Paleontological Resources

The cumulative effects of alternatives that include surface disturbing activities within areas containing significant fossils have the potential to damage this fragile, nonrenewable resource. However, existing laws, regulations and policies provide ample opportunity to mitigate adverse effects through avoidance or collections of specimens and data. While it is expected that some fossils will be destroyed in the course of other legitimate uses of public lands, mitigation measures will bring consultant paleontologists to areas in the VPA where no researchers are

currently studying fossils. Thus fossils that would otherwise have disintegrated over time due to weathering and erosion will be collected, placed in repositories, and preserved in perpetuity.

4.22.9 Cumulative Impacts on Visual Resources

Other management efforts within and outside the VPA boundaries could produce long-term cumulative impacts on visual resources. Reasonably foreseeable future actions, including planning efforts to locate and develop mineral and hydrocarbon resources within the VPA could have adverse impacts on visual resources. Impacts would be caused by surface disturbance from production, exploration, and construction of drilling and mining facilities, and OHV use.

Specific actions within the VPA that would potentially have adverse cumulative effects on visual resources include: the Inland Gas Development Project; the Resource Development Group Natural Gas Project; the Veritas, WesternGeco, and Trace Energy seismic exploration projects; and Questar Exploration‘s Deadman Bench Gas Project. However, these projects would be required to conform to an area‘s VRM Class objectives through design, camouflage, and/or topographic screening, which would prevent their cumulative impacts on visual resources from becoming significant.

Actions outside of the VPA that could potentially affect visual resources would include the Ashley National Forest RMP and the Price FO RMP. The impacts on visual resources would be cumulatively beneficial if these administrative areas coordinate their planning efforts to preserve scenic quality along their boundaries with the VPA. Conversely, if planning efforts are not coordinated, scenic quality along the VPA boundary could be adversely affected.

4.22.10 Cumulative Impacts on Special Status Species

Resource decisions from this RMP could combine with other past, present, and reasonably foreseeable actions to produce cumulative impacts to special status species associated with the VPA. Co-occurring planning projects in the region include the Price Field Office BLM RMP, and the Ashley National Forest Management Plan. Resource decisions for the Price Field Office, which is adjacent to the VPA, would likely result in cumulative effects. The same management direction and resource uses occur in both planning areas. The Ashley National Forest management decisions would also overlap regarding several of the same resources. Surface disturbance associated with consumptive uses such as oil and gas, and minerals development, and forage use would result in cumulative effects over a larger landscape scale than what is analyzed in this VPA RMP.

Oil and gas development has occurred across this region in the past and will continue into the future. The seismic exploration is also ongoing. Several Environmental Impact Statements and Environmental Assessments have been prepared to assess these impacts. The combined amount of surface disturbance of these past, present, and future actions would be detrimental to special status plants. The spatial layout of oil and gas facilities disturbs a large proportion of vegetation when considered across the landscape. Each disturbed area for a well pad or road increases the opportunity for weed invasions and disrupts the spatial continuity of vegetation communities. Other activities such as road building will increase access to sensitive areas Special Status Species are dependent upon for survival. For example, increased access into prairie dog sites will increase mortality by shooters and indirectly impact all the species associated with them.

The overall cumulative impact of activities proposed for all resource decisions on special status plants is projected to be moderate to detrimental at localized areas within the short-term. Major

contributors include OHV activities throughout most of the area; increased livestock grazing; habitat destruction from mineral development related activities; some vegetation treatments such as sagebrush removal, and possible project developments, such as livestock water developments resulting in redistribution of livestock into previously unused areas which are sensitive to disturbance. Direct impacts would be due to loss of individual plants from mineral, oil and gas related development. Indirect impacts from habitat fragmentation due to development, changes in OHV use due to increased roads, and rock collection would also occur. These activities would concentrate grazing pressures and recreation use on habitat sites for some species. The cumulative impacts of all these uses could lead to lower populations of Special Status plants and animals in the future. In addition, some sensitive species may be pushed closer to listing or extinction from the cumulative degradation of BLM lands in the long term. Beneficial impacts would be obtained with designation of the proposed ACECs, because numerous plant populations would be given special management protection within the boundaries of those designated areas.

4.22.11 Cumulative Impacts on Special Designations

4.22.11.1 ACECs

Cumulative impacts from the implementation of other resource decisions within and outside of the VPA on currently designated and potential ACECs would be minimal with the exception of mineral and OHV decisions. Mineral resource development and OHV activity could result in major adverse impacts to resource values in some areas, depending upon the alternative.

4.22.11.2 Wild and Scenic Rivers

Cumulative impacts from the implementation of other resource decisions on outstanding remarkable values, tentative classification or free-flowing nature of eligible or currently suitable river segments would be minimal with the exception of mineral and OHV decisions. Mineral resource development and OHV activity could result in the loss of outstanding remarkable values in some river corridors, depending upon the alternative.

Should Congress designate eligible/suitable river segments into the NWSRS, protection of the outstandingly remarkable values, tentative classifications, and free-flowing nature of these rivers would continue to be protected, but to a greater extent than under the proposed management actions. In addition to the BLM protecting wild and scenic values to the extent of its authority, the Federal Energy Regulatory Commission (FERC) would not be able to license any hydropower projects within any designated segments. This would preclude any future construction of a dam involving Segment 1 of the White River. Also, if Congress were to designate Segment 2 of the White River into the NWSRS with a tentative classification of Wild, all public lands within the river corridor would automatically be withdrawn from mineral location and the public land laws. In addition, Congress may choose to provide a federal reserved water right for in-stream flow purposes for any rivers that it designates into the national system, but it would be junior to any existing water rights.

4.22.11.3 Wilderness

Cumulative impacts from the implementation of other resource decisions on WSAs, Non-WSA lands with Wilderness Characteristics, and Non-WSA lands likely to have Wilderness Characteristics would be minimal with the exception of mineral and OHV decisions. Mineral

resource development and OHV activity could result in major adverse impacts to wilderness characteristics (See Table 4.14.3).

4.22.12 Cumulative Impacts on Wildlife and Fisheries

Resource decisions from this RMP could combine with other past, present, and reasonably foreseeable actions to produce cumulative impacts to wildlife and fisheries populations associated with the VPA. Co-occurring planning projects in the region include the Price Field Office BLM RMP, and the Ashley National Forest Management Plan. Resource decisions for the Price Field Office, which is adjacent to the VPA, would likely result in cumulative effects. The same management direction and resource uses occur in both planning areas. The Ashley National Forest management decisions would also overlap regarding several of the same resources. Surface disturbance associated with consumptive uses such as oil, gas, and other minerals development, and forage use would result in cumulative effects over a larger landscape scale than what is analyzed in this VPA RMP.

Oil and gas development has occurred across this region in the past and will continue into the future. Seismic exploration for oil and gas resources is also ongoing. Several Environmental Impact Statements and Environmental Assessments have been prepared to assess these impacts. The combined amount of surface disturbance of these past, present, and future actions would be detrimental to vegetation. The spatial layout of oil and gas facilities disturbs a large proportion of vegetation when considered across the landscape. Each disturbed area for a well pad or road increases the opportunity for weed invasions and disrupts the spatial continuity of vegetation communities.

4.22.13 Cumulative Impacts on Woodlands

Other management efforts, within the VPA boundaries could produce long-term cumulative impacts on woodland resources. Reasonably foreseeable future actions, including planning efforts to locate and develop mineral and hydrocarbon resources within the VPA would potentially have adverse impacts on woodland resources by removing the resource from production and use in construction and support facility areas. Most foreseeable future development within the VPA consists of oil and gas well exploration and development. Areas within the VPA where these activities are being considered include: the East and West Tavaputs Plateaus, Monument Butte-Red Wash, Altamont-Bluebell, Tabiona-Ashley Valley, and Manila-Clay Basin.

Specific actions that would potentially have adverse cumulative effects include: the Inland Gas Development Project; the Resource Development Group Natural Gas Project; the Veritas, WesternGeco, and Trace Energy seismic exploration projects; and Questar Exploration‘s Deadman Bench Gas Project.

Actions outside of the VPA that could potentially affect woodlands resources include the Ashley National Forest RMP and the Price FO RMP. These planning efforts could have cumulative beneficial impacts on woodland resource if inter- and intra-agency coordination were included. Coordination would be useful in managing prescribed burns, and wildfires. Cumulatively, these planning efforts would create greater woodland diversity and health through fire and vegetation treatments. Conversely, if planning coordination were not included in these management plans, the potential for the loss and/or degradation of woodland resources would be increased.

4.22.14 Cumulative Impacts on Recreation

The Ashley National Forest is currently undergoing a Forest Management Plan that will establish policy for recreation use. Because recreation areas in the VPA are adjacent to areas in the Ashley National Forest, plans for recreation could have a cumulative impact on the availability of recreational opportunities in the region. Management actions in the Uintah National Forest could also affect the availability and quality of recreation in the region.

Price District of the BLM is currently undergoing a Resource Management Plan process. In particular, plans for Nine Mile Canyon would affect management in the VPA.

Dinosaur National Monument draws nationwide visitation for paleontological resources. Many of these visitors stay in the area and recreate within the VPA. Plans for Dinosaur National Monument to draw visitors could also increase visitation to the VPA.

Four state parks in the region host approximately 260,000 visitors per year, which could contribute to both the economic activity attributable to recreation, as well as the potential effects of recreation stated above.

4.22.15 Cumulative Impacts on Livestock and Grazing

Cumulative effects to livestock and grazing could result from activities on adjacent private lands, activities scheduled for State and Institutional Trust Land Administration lands, and administrative actions on adjacent National Forest System lands on the Ashley National Forest. These cumulative impacts have been considered as part of the direct and indirect impacts analysis, as the calculated AUMs include current and reasonably foreseeable grazing on State, private, and tribal lands.

4.22.16 Cumulative Impacts on Cultural Resources

Resource decisions from this RMP could combine with other past, present, and reasonably foreseeable actions to produce cumulative impacts to cultural resources and resources of religious or traditional importance to Native American tribes associated with the VPA. Concurrent planning projects in the region include the Price Field Office BLM RMP and the Ashley National Forest Management Plan. Resource decisions for the Price Field Office, which is adjacent to the Vernal Planning, would likely result in few cumulative effects to cultural resources within the VPA as cultural resources are stationary entities. The same management direction and resource uses occur in both planning areas. The Ashley National Forest management decisions would also overlap regarding several of the same resources. Surface disturbance associated with consumptive uses such as oil, gas, and other minerals development, and forage use could result in cumulative effects over a larger landscape scale than what is analyzed in this VPA RMP. However, planning decisions related to the Price Field Office and the Ashley National Forest are also subject to federal cultural resource laws and application of the Section 106 process of the NHPA. Further, general planning decisions of these two entities in relation to land uses and management that has the potential to impact cultural resources on adjacent lands within the VPA (i.e., fire fuels reduction, erosion reduction through effective vegetation management, etc.) would generally have a positive affect on cultural resources within the VPA.

Oil and gas development has occurred across this region in the past and would continue into the future. Seismic exploration for oil and gas resources is also ongoing. Several Environmental Impact Statements and Environmental Assessments have been prepared to assess these impacts.

The spatial layout of oil and gas facilities disturbs a large proportion of the ground surface when considered across the landscape. Each disturbed area for a well pad or road increases the opportunity for both direct and indirect impacts to cultural resource sites. All such development is, however, subject to Section 106 of the NHPA, which is used to identify important cultural resources within the area of potential effects for these undertakings and consider alternatives to avoid or mitigate these impacts. In this manner, the potential for direct and indirect impacts to cultural resources can be reduced.

Many decisions related to visual resource management, special designations, and restrictions on surface disturbance in crucial deer winter range have the potential to provide a net positive benefit to cultural resources within the VPA. These decisions would reduce or control the frequency and extent of ground disturbing activities that present the greatest threat to maintaining the use values of cultural resources. In general, all minerals and recreation decisions under all alternatives have the potential to increase or at least maintain current levels of adverse impacts to cultural resources. Decisions for minerals and recreation generally increase or maintain current levels of surface and subsurface disturbance and have as an indirect effect an increase in human activity within those areas of minerals development and recreational use. Increased human activity tends to equate with increased adverse impacts to cultural resources.

In general, implementation of the array of resource decisions under Alternative C would have the lowest degree of potential negative impact on cultural resources within the VPA, and in many cases Alternative C has the highest overall benefit for cultural resources. Overall, fewer acres of land would be open for ground disturbing activities under this alternative than under any other alternative. Although no direct correlation exists between acres of surface and subsurface disturbance and numbers of cultural resources impact, this general trend holds true. By comparison, Alternative A and Alternative D – No Action have the potential for roughly comparable levels of potential adverse impact to cultural resources. Decisions under Alternative B have the greatest potential for adverse impacts. It should always be remembered that under all alternatives, specific undertakings that could result in surface and subsurface disturbance and have the potential to impact cultural resources are subject to the Section 106 process of the NHPA which calls for the identification of historic properties (i.e., National Register listed sites or sites determined eligible for listing on the National Register) within the area of potential effects and the consideration of alternatives to the planned undertaking that could avoid impacts to said properties. In the event that avoidance is not possible, mitigation of the impacts is to be considered.

4.22.17 Cumulative Impacts on Wild Horses

Disease transmission to and from domestic horses on Tribal and private land surrounding the HA will likely continue to be an issue with the wild horse herds in the VPA until the movement and intermingling of wild horses and Tribal horses is reduced. Trespass of wild horses on Tribal lands along the unfenced and partially fenced northern boundary of the Hill Creek HA (Wild Horse Bench) and private and state lands in Agency Draw will likely continue. However, the areas wild horses are currently using in Wild Horse Bench and Agency Draw were not considered crucial to the long-term survival of the herd nor was it included in the original delineation of the HA (BLM 1983a). Wild horses in the southern part of the HA move seasonally between public and Tribal lands. During the winter, horses tend to move onto public lands, as Tribal lands are higher in elevation. As a result of this seasonal migration, winter census counts for the HMA are typically two to three times higher than late summer counts (150-170 horses in

winter compared 40-50 in summer). Water is also limited on public lands in the summer, and so the majority of the horses move back to the Tribal land at that time. Limiting the movement of wild horses in this area could reduce or eliminate the portion of the wild horse herd using this area of the HA.

4.22.18 Cumulative Impacts on Fire Management

Cumulative effects are a combination of impacts from each alternative with the past, present, and reasonably foreseeable future actions associated with the project and surrounding area.

4.22.18.1 Ashley National Forest and Price Field Office Resource Management Plans

Revisions are being made to the Ashley Forest Resource Management Plan. Depending upon on the decision, various actions could affect fire management within the VPA. Based on the impetus that the federal fire management agencies are placing on implementing the Federal Wildland Fire Policy, it is likely that these revisions would include vegetation management to decrease fuel loading, and consequently, decreased fire risk.

4.22.18.2 EISs for Field Development

Environmental Impact Statements are being written for field development projects in and around the VPA. Depending upon the decision, various actions could affect fire management within the VPA. Most of gas and oil pipelines in and around the VPA are located within the desert shrub vegetation community and, hence, do not produce high fire risk. Service lines in these areas are made of plastic. However, large service lines are also proposed within the sagebrush vegetation community. These service lines would have to be steel (versus plastic) in order to reduce fire risk.

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